2007 Middle Rio Grande Water Assembly
June 9, 2007

Growth, Ecology, Traditions: Not Enough Water for All

Setting the Stage: the Problem, the Plan and the Gaps

Elaine Hebard, *Water Assembly Volunteer*

[Note: Handout, "Ten Years of Regional Water Planning in the Middle Rio Grande," summarizing activities as well as gaps and flaws, can be found at the end of this segment.]

Bob Wessely: It gives me great pleasure to introduce our next speaker. She's been working with the Water Assembly since year One, or 1997, if I remember right. She's been a driving force in numerous activities. She was the prime driver in putting together the sub-regional plan for the Rio Puerco/Rio Jemez. She's worked tirelessly on each of the annual assemblies—somewhere in the vicinity of 140 hours in the week leading up to them. She's again threatened to retire from the Assembly, and we're trying to talk her into not doing that. Elaine Hebard.

Elaine Hebard: I don't do well with kudos, but thanks, Bob.

A Quick Review

- The problem and the Regional Water Plan (RWP)
- Known Gaps in Existing RWP
- Existing Planning/Process Flaws

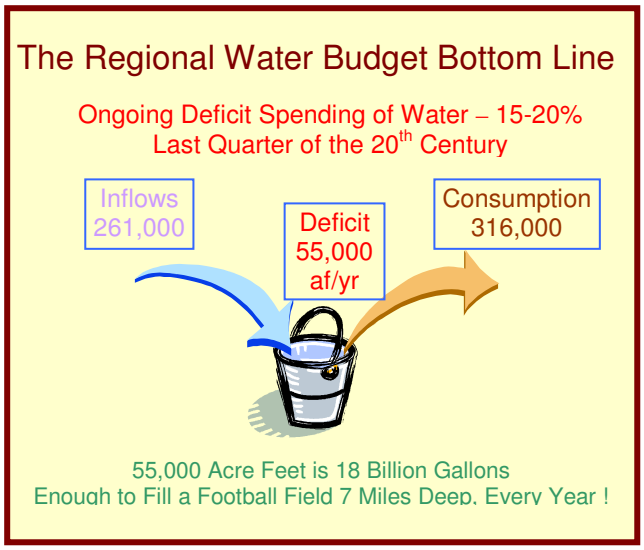
Actually we're going to see the same slides because I cribbed them off of Bob and Ed. I'm going to talk very quickly and you've probably already heard this, but I thought we should at least start the discussion by setting the stage as to what the problem was that led to the water plan, and what are some of the gaps that we didn't deal with.

The Problem = Shortfall

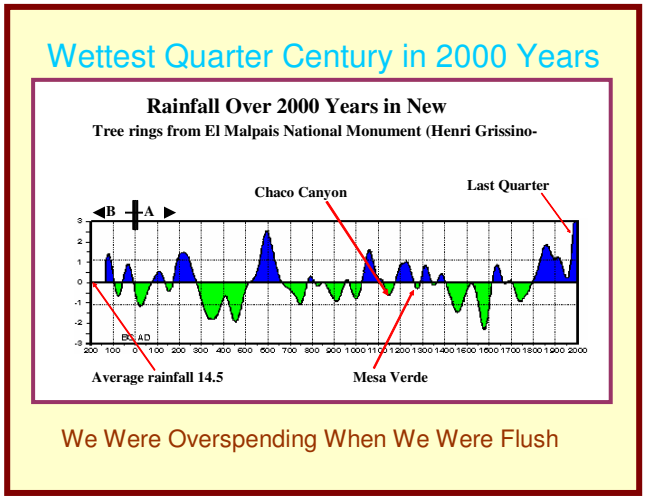
In 1999, the Assembly published the Regional Water Budget. It helped us realize that we were using substantially more water every year than is being renewed.

That conclusion was reiterated in the *Middle Rio Grande Water Supply Study, Phase 3*, prepared for the New Mexico Interstate Stream Commission and issued in November of 2004.

Frank Titus led the crew back in 1999 that created our water budget, and that helped focus as to how we were going to deal with a plan because we tried to think of ways to reduce the difference between supply and demand. The conclusion that was reached in 1999 by volunteers, thank you, was reiterated for several hundred thousand dollars in the Middle Rio Grande Water Supply Study of 2004.



You just saw this but it bears repeating: there is a difference—a substantial difference—between supply and demand.



You also saw this one. When we saw the big growth of the final quarter of the last century, it was during one of the wettest time periods. But that "normal" is not what we've seen in the last four centuries.

Audience member: I'd like to ask a question about that curve. Is that 500 AD—

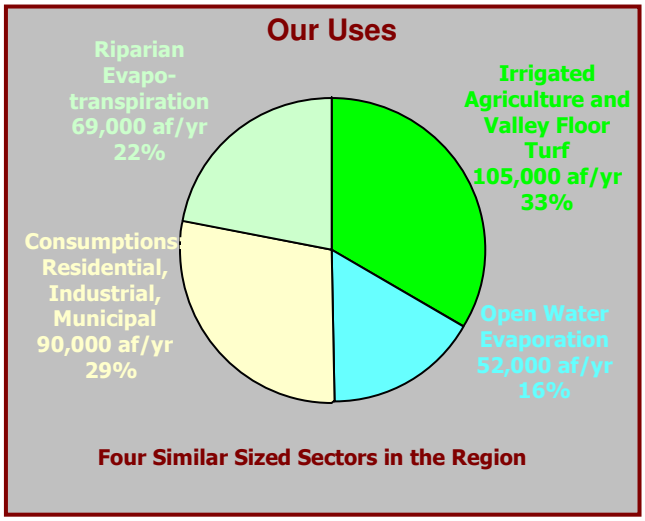
Hebard: That's modified over the last two thousand years…

Audience member: What's the vertical? Is that inches in rainfall?

Bob Wessely: Yes. It's running from eleven to seventeen.

Audience member: So that's way off. That's like that movie the vice president did—it's right off the charts.

Hebard: It shows though, what happens with just a little bit of change. You have Mesa Verde being abandoned, Chaco Canyon being abandoned, with just a little bit of deviation from the norm.



This is water use within the Middle Rio Grande's three counties—Sandoval, Bernalillo and Valencia. You can see that the uses are more or less in four similar-sized sectors: riparian at 22%, urban at 29%, agriculture at 33%, and open water at 16%. That does not include the open water evaporation from Elephant Butte. That is outside our region and we were told not to worry our little heads about it.

Audience member: What is the open water evaporation [in the region]?

Hebard: It's off the river and a little bit off of Cochiti.

Audience member: In the residential, industrial, and municipal [category], does the military use get counted in there?

Hebard: It is. Most of what they're pumping at Kirtland would be included in that figure. They report straight to the Office of the State Engineer, and these figures come from there.

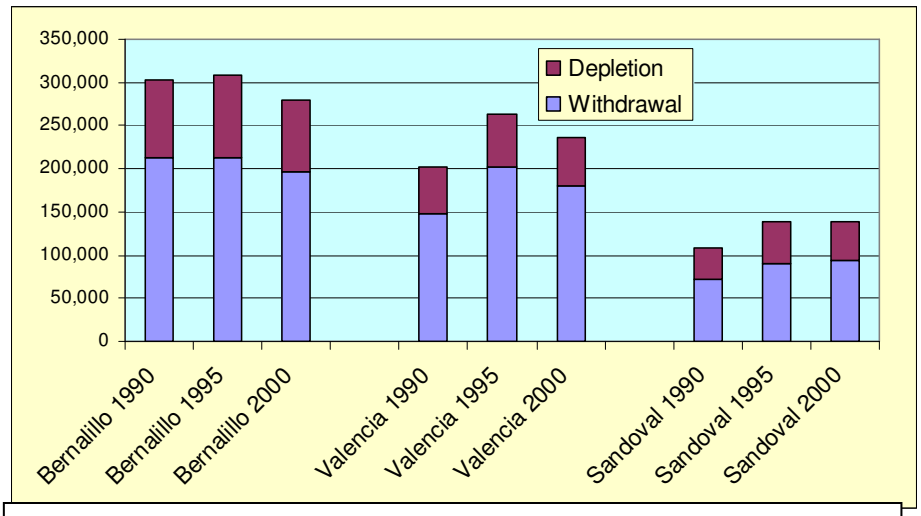
Audience member: In the grand scheme, who gets charged with evaporation off Elephant Butte?

Hebard: That's the problem. It's part of our region on a hydrologic basis, but they split up the basin into three planning regions, and the one that [contains Elephant Butte] is Socorro-Sierra, which gets charged with the entire 150-thousand acre-foot average depletion. We have an effort underway called the Upstream/Downstream Project, which is bringing the three planning regions together to talk about how we might share some of those burdens, as well as some of the benefits.

Audience member: In [the figure for] residential, industrial and municipal, is there any compensation made for return flow credits?

Hebard: This is all consumption; it's not diversions. You've already got that built in. What he's talking about is, let's say you pump 100,000 acre-feet. You might get credit for half of that as return flow to the river, so the consumption would only be 50,000 acre-feet. For example, the Albuquerque/Bernalillo County Water Utility Authority pumps over a hundred thousand acre feet, but you'll see that over the entire region, it's only 90,000, and that's because they get credited for 50,000 acre-feet. And the same goes for Rio Rancho, etc.

MRG Withdrawals & Depletions, 1990, 1995 & 2000, in acre feet



Withdrawals and depletions in 2000, while less than in 1995, were more than 1990. Note – this does not include evaporation from Elephant Butte Reservoir, nor riparian usage by the *bosque*.

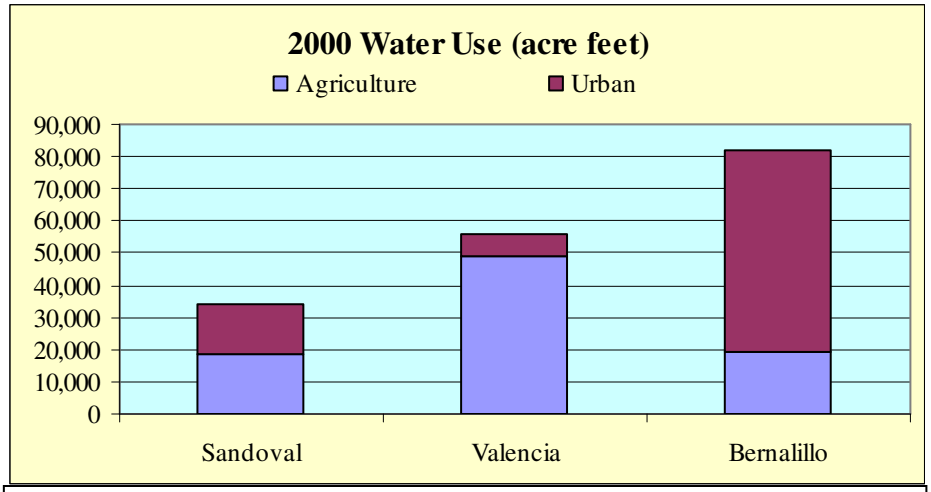
Source: Brian, C., Wilson, P.E., "*Water Use by Categories in New Mexico Counties and River Basins, and Irrigated Acreage*", Technical Reports, 1992, 1997 and 2003, New Mexico State Engineer Office, Santa Fe, NM.

Okay. Just a little bit different way of showing this…these are the depletions and withdrawals for three different time frames, and you can see that Bernalillo — the difference in depletions and withdrawals gives you some sense that Bernalillo County uses about twice what Sandoval County does. We'll see what the 2005 numbers look like when they come out.

Audience member: Is that groundwater?

Hebard: It's ground and surface water together. It's from Brian Wilson's report.

Comparing Agricultural and Urban Depletions, 2000, in acre feet

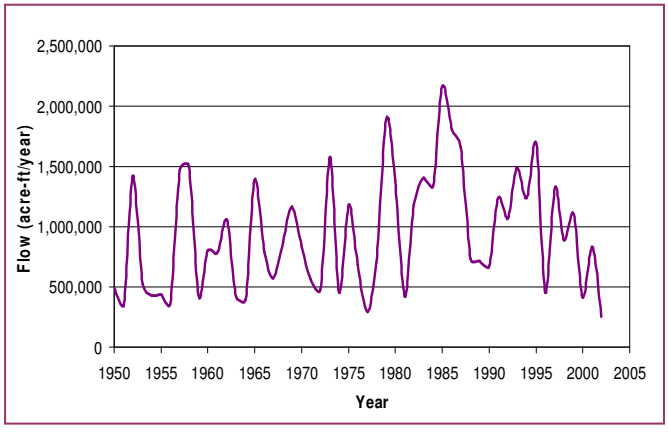


Generalizations, as shown in the last slide, mask localized usage. For example, while agricultural and urban uses in the three county area are about even, agricultural uses amount to approximately 18% in Bernalillo County while they are 87% in Valencia County.

This is showing the difference in each of the counties between agriculture and urban. This is depletions only, so in Bernalillo County you can see that the urban sector is the bigger user, and in Valencia County, agriculture is the bigger user. Sandoval is about half each.

Water supply is variable

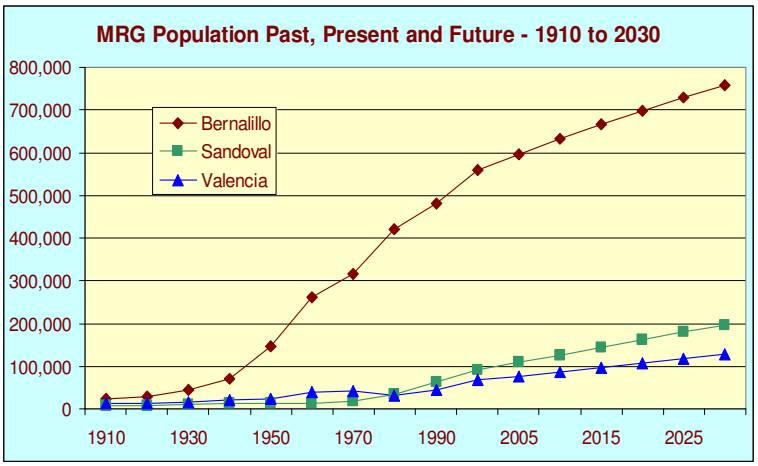
Annual Variability: Otowi Index Supply, 1950-2002



Another point to make is that our water supply is quite variable. Here's [the record for] Otowi Gauge, and the only thing you can really say is there's an amazing amount of variability. There's not much consistency is there? So we have to plan and it's really hard.

In addition to the past gap, we have new users, whether they be silvery minnow, industry, new housing or farming, there are all kinds of new uses.

Population From 1910 to 2030



Source: Bureau of Business and Economic Research, University of New Mexico.

This is just to show population changes. This is 1910, and this would be us in 2030. This is for Bernalillo County, Valencia and Sandoval Counties, and they're all expected to keep growing.

The Regional Water Plan

Completed – 2004
Sandoval, Bernalillo, and Valencia Counties
Accepted by All 20 Local Governments in Region
Accepted by NM Interstate Stream Commission

Mission of the Plan:

"Balance Water Use with Renewable Supply"

What Actions Will Make It Really Happen?

As you saw in Ed's slide and in the Background Report (that blue page in the handouts), the Regional Water Plan made 43 recommendations that either increase the supply, or decrease demand.

Middle Rio Grande Regional Water Plan
2000-2050
Volume 1 – August 2004

The Regional Water Plan has 43 recommendations

Increase Supply
- Restore the Bosque
- Manage the Watershed
- Re-Use Pumped Water
- Reduce Open Water Evaporation
- Harvest Rainwater
- Desalinate / Import Brackish Water
- Modify the Weather

Decrease Demand
- Implement Urban Conservation Plans
- Implement Rural Conservation Plans
- Adjust Water Pricing
- Meter Water Uses
- Limit New Domestic Wells
- Moderate Population Growth

After years and years of Community Conversations and Annual Assemblies and duking it out with various interests, I'm really proud we have this plan.

Why Does Planning Still Matter?

- the water deficit has not gone away,
- improved knowledge continues to surface, and
- potential consequences of inadequate poor planning have become more focused.

But, 'Why does planning still matter?' Well, the deficit hasn't gone away, we have accrued more and more knowledge, and we know that some of the potential consequences of inadequate planning have become more focused, such as compact delivery issues.

Review the Background Report

- Known Flaws in the Water Plan, and
- Flaws in the Planning Process

If you look at the Background report, right up at the top of the second page, you'll see some of the known flaws in the planning process, so I'm not going to go over all of them with you.

Many Issues Were Not Addressed

The morning Panel will touch on:

- **ESA Demands** - RWP did not include; how will those be met?
- **Ownership of Water** -- RWP did not include; important when thinking about how to reduce the use
- **Water Quality** -- RWP did not consider how standards may affect availability

Some of the issues we *are* going to talk about today include ESA demands... The water plan did not include anything about the Endangered Species Act. If the Biological Opinion calls for 50,000 or 30,000 acre-feet for the silvery minnow, where is that going to come from? How will those needs be met? Ownership of water, or water rights…the regional plan didn't deal with water rights, but that's really important when we talk about how we're going to balance our budget, and on whose back? Water quality…we also didn't consider how water quality standards—current and changing—might affect availability.

- **Climate Change** -- RWP did not consider what effects on supply global warming may have on amount of snow pack, timing of precipitation and what management policies might need to be revised
- **New Urban Demands** -- While population increases were considered in the RWP, there was no linkage to how those demands might be met.
- **Desalination Issues** -- The RWP did recommend developing new water supplies through desalination (R8-1), but did not consider the additional energy (and thus water) needs nor the toxic waste disposal

Climate change…we didn't talk about the effects on supply that global warming may have, on the snow pack., or on the timing, and what management policies might need to be revised to address that. In the urban demands, we knew there'd be population increases, but we didn't link it to how you are going to meet those demands. Desalination issues…again, we recommended that we look at desalination as a way to increase water supplies --Recommendation R-8-1-- but we didn't consider the additional energy costs that might entail, or the water [to produce] that energy, or the toxic waste disposal.

Building on Previous Assemblies

- Eighth Annual Water Assembly - 2004
  - The Urgent Shortfall Reality
- Ninth Annual Water Assembly - 2005
  - The Region's Over-Allocation of Water
- Tenth Annual Water Assembly - 2006
  - Adjudication – Curse or Salvation?

Growth, Ecology, and Traditions:
Not Enough Water for All !

So, reiterating that this [Assembly] builds on past Assemblies, I hope that we will continue in the future to have these hard-hitting dialogues about the consequences and issues folks need to be aware of.

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(handout)

Ten Years of Regional Water Planning in the Middle Rio Grande

The Water Assembly is a 501(C)3 non-profit corporation made up entirely of volunteers, self-selected into five broad constituency groups: Agricultural Business and Production Advocates, Cultural and Historic Water Use Advocates, Environmental Preservation and Improvement Advocates, Industrial, Institutional and Business Advocates, Residential Water Use Advocates and Technical Specialty Advocates. Delegates from each constituency group are selected annually by the general membership to serve as a governing board, headed by an Executive Committee.

Since 1997, the Assembly has led water planning efforts in the Middle Rio Grande, an area that encompasses Sandoval, Bernalillo and Valencia Counties. In partnership with the Mid-Region Council of Governments and its Water Resources Board, and funded through the New Mexico Interstate Stream Commission, which oversees regional water planning statewide, the Assembly completed a comprehensive water plan for the three counties, plus a sub-regional plan for the Rio Puerco and Rio Jemez basins, in 2004. The plan was accepted by all local governments in the region and by the New Mexico Interstate Stream Commission

An unparalleled and intensive public involvement process informed the creation of the water plan.

- Six rounds of Community Conversations in each of the three counties to allow citizens and planners to dialogue throughout the process
- Facilitated Regional Forums to reach consensus on critical plan elements such as mission and goals
- Public Opinion Surveys to record regional preferences on a wide range of water issues
- Expert scientific analysis and modeling of water supply, demand, scenarios and proposed alternative actions
- Interaction with governmental and non-governmental organizations to promote the flow of information
- Annual Assemblies to inform the public on plan progress and obtain input on next steps

Water Plan Highlights:

To begin the process, a water budget was developed by a large and diverse technical team. The budget showed that demand exceeded renewable supply by 20% -- enough water each year to fill a football field 9 miles deep. To address the gap, the plan contained forty-three recommendations, some of which were:

- Promote conversion to xeriscape
- Promote rainwater harvesting
- Convert to low-flow appliances
- Reuse greywater
- Reuse treated effluent
- Enforce water use regulations
- Measure all water use
- Develop watershed management plans
- Continue comprehensive, integrated water use planning
- Pursue adjudication and water rights settlement
- Level irrigated fields
- Upgrade agricultural conveyance systems
- Convert to low water use plants
- Develop new water supplies
- Restore native bosque
- Implement education programs

Implementation:

The Regional Water Plan is advisory, not a directive. The next steps are implementation of the recommended actions. This may include increased public awareness and education, incentives, policies, publicity, ordinances, laws, regulations, taxes, water rights purchases, pricing, and other means of managing the consumptive use of water within the region. Additional studies and projects that could enhance water supplies may also be required.

Known Flaws in the Water Plan

At the time the plan was accepted, several parts were known to be incomplete or insufficient because of schedule or resource pressures. Some of them were:

- Absence of Progress Metrics
- Absence of Drought Plans
- Ambiguities in Public Welfare Statement
- Insufficient Tribal Involvement
- Lack of water rights adjudication
- Recommendations Not Well Quantified

Flaws in the Planning Process

Similarly, there were several institutional and/or historical constraints which prevented the plan from being more robust. Some of these obstacles included:

- Inter-Regional Inconsistencies
- Synchronization with State Water Planning
- Legal Issues and Obstacles
- Lack of Funding for Implementation
- Diffuse and/or Ambiguous Responsibilities

Why Does Planning Still Matter?

Following the acceptance of the plan, improvements have been made to our management of water for the region. However, the deficit has not gone away, improved knowledge such as global warming have surfaced, and potential consequences of inadequate poor planning have become more focused. Such consequences could include:

- Rio Grande Compact non-compliance (or cost to comply)
- Federal control of water (due to ESA or Compact issues)
- Escalating costs of water
- Interminable legal battles (tribal, interstate, intra-state)
- Loss of traditions, communities, industries, economies
- Disconnect between land use planning and water availability

Water Assembly Activities Since Development of the Plan:

Annual Water Assemblies topics have included the 'Urgent Shortfall Reality' (coping with the possibility of compact non-compliance); over-allocation of the basin's water supply; and the pros and cons of basin adjudication. Assembly members also worked on a Monitoring & Implementation Progress Plan; began hosting an annual Rio Grande Compact Forum; and participated in a variety of water-oriented activities such as the innovative Upstream/Downstream Workshops aimed at fostering dialogue between neighboring water planning regions. The Assembly also supports local and state efforts to improve water policy, and encourages education and research with programs such as the Regional Science Fair Water Awards.

www.WaterAssembly.org